(12) UK Patent Application (19) GB (11) 2 388 136 (13) A

(43) Date of Printing by UK Office

05.11.2003

(21) Application No:

0317296.2

(22) Date of Filing:

28.01.2002

(30) Priority Data:

(31) 0102023

(32) 26.01.2001

(33) GB

(31) 0102526 (32) 01.02.2001

(86) International Application Data: PCT/GB2002/000362 En 28.01.2002

(87) International Publication Data: WO2002/059452 En 01.08.2002

(71) Applicant(s):

e2TECH Limited (Incorporated in the United Kingdom) C/o Weatherford International Inc. 515 Post Oak Blvd, Sulte 600, Houston, Texas 77027, United States of America

(continued on next page)

- (51) INT CL7: E21B 33/00 33/14 43/10
- (52) UK CL (Edition V): E1F FJU FLA

(56) Documents Cited by ISA:

WO 2000/037766 A

US 5086841 A

US 4862967 A

US 4836940 A

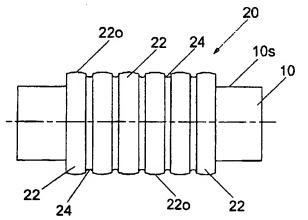
US 3918523 A US 3385367 A

US 3740360 A US 2945541 A

(58) Field of Search by ISA: INT CL7 E21B Other

(54) Abstract Title: Device and method to seal boreholes

(57) Apparatus and methods are described that are particularly suited for creating a seal in a borehole annulus. In one embodiment, an outer surface 10s of an expandable conduit (10) is provided with a formation (20) that includes an elastomeric material (e.g. a rubber) that can expand and/or swell when the material comes into contact with an actuating agent (e.g. water, brine, drilling fluid etc.). The expandable conduit (10) is located inside a second conduit (e.g. a pre-installed casing, liner or open borehole) and radially expanded. The actuating agent can be naturally occurring in the borehole or can be injected or pumped therein to expand or swell the elastomeric material to create the seal.



GB 2388136 A continued

- (72) Inventor(s): Nell Thomson
- (74) Agent and/or Address for Service:

 Murgitroyd & Company
 Scotland House, 165-169 Scotland Street,
 GLASGOW, G5 8PL, United Kingdom

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 1 August 2002 (01.08.2002)

PCT

(10) International Publication Number WO 02/059452 A1

(51) International Patent Classification?: E21B 33/00

(21) International Application Number: PCT/GB02/00362

(22) International Filing Date: 28 January 2002 (28.01.2002)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0102023.9 26 Jan 0102526.1 1 Feb

26 January 2001 (26.01,2001) GB 1 February 2001 (01.02,2001) GB

(71) Applicant (for all designated States except US): e2 TECH LIMITED [GB/NL]; Shell International B.V., P.O. Box 384, NL-2501 CJ The Hague (NL).

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): THOMSON, Neil [GB/GB]; 84 Cornhill Road, Aberdeen AB25 213H (GB).
- (74) Agent: MURGITROYD & COMPANY; 165-169 Scotland Street, Glasgow G5 8PL (GB).

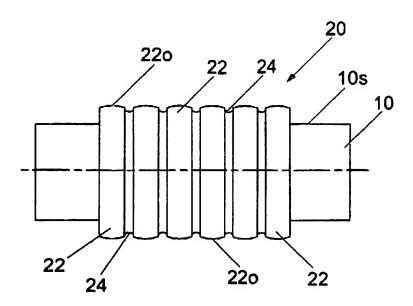
- (81) Designated States (national): AE, AG, AI, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, IIU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PI, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: DEVICE AND METHOD TO SEAL BOREHOLES



(57) Abstract: Apparatus and methods are described that are particularly suited for creating a seal in a borehole annulus. In one embodiment, an outer surface 10s of an expandable conduit (10) is provided with a formation (20) that includes an elastomeric material (e.g. a rubber) that can expand and/or swell when the material comes into contact with an actuating agent (e.g. water, brine, drilling fluid etc.). The expandable conduit (10) is located inside a second conduit (e.g. a pre-installed casing, liner or open borehole) and radially expanded. The actuating agent can be naturally occurring in the borehole or can be injected or pumped therein to expand or swell the elastomeric material to create the seal.

O 02/059452 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.